

GO WEST

VOLUME 15/NUMBER 2

MARCH/APRIL 1971

100 YEARS...



March 1, 1972, will mark the 100th anniversary of the world's first national park, Yellowstone. In commemoration of this occasion Congress has enacted legislation to proclaim the year 1972 as "National Parks Centennial Year."

To celebrate the anniversary Congress has authorized a National Parks Centennial Commission consisting of four members each from the Senate and House of Representatives, the Secretary of the Interior, and six Presidential appointees. Director of the National Park Service George B. Hartzog, Jr., or his designee, will serve as Executive Director of the Commission.

Members from Congress are Senators Henry Jackson, Washington; Alan Bible, Nevada; Paul Fannin, Arizona; and Clifford Hansen, Wyoming; and Representatives John Melcher, Montana; Thomas Foley, Washington; Joe Skubitz, Kansas; and John Saylor, Pennsylvania.

The Commission will work with Federal, State, local and nongovernmental agencies and organizations, as well as, appropriate international organizations. Together they will prepare and execute a suitable plan for commemorating the anniversary of the beginning of the worldwide national park movement. It will coordinate the activities of these agencies

and organizations and provide host services for a Second World Conference on National Parks to be held in Yellowstone and Grand Teton National Parks, September 18-26, 1972.

"The work of the Commission offers an unparalleled opportunity to speak to the meaning and significance of a second century of parks," says Director George B. Hartzog, Jr.

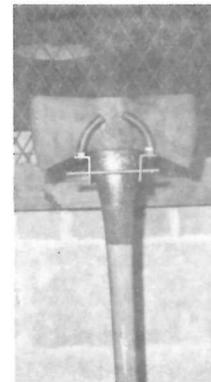
A National Parks Centennial Advisory Committee will formulate ideas and make recommendations to the Centennial Commission. A special Committee Staff will develop a plan for the celebration, provide administrative support to the Commission, and coordinate the year's activities.

The main theme of the Second World Conference on National Parks is expected to be "National Parks: A Heritage for a Better World." The participants—about 500 delegates and observers from possibly as many as 90 countries—will critically examine park values in terms of scientific, aesthetic, historic, economic, ecological, sociological, and management considerations. They will also examine the relevance of present park concepts to the needs of indigenous cultures, potential new uses, tourism, and other demands expected to be faced during the next 100 years.

REDUCING SHARP TOOL SAFETY HAZARD

There is always an element of danger in removing sharp tools from racks or returning them. Vester Eugene Sample, fire control aid, Natchez Trace Parkway has reduced this safety hazard at his Tupelo subdistrict post in the manner shown in the accompanying photographs.

Before...



The hazard

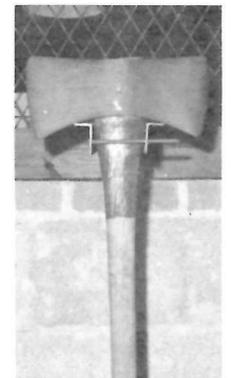


Small stove bolts were inserted through holes in the fire tool racks to prevent sharp edged tools from turning sideways and slipping off the rack. The bolts are held in place by a nut. Their upright position prevents tool heads from turning and/or slipping forward. One tool at a time may be removed in safety and without fear that the remaining tools will move.

To accommodate narrower tool heads, such as brush hoods, the bolts are bent slightly. Each bolt is covered with a piece of scrap traffic counter hose to prevent scratching of the tool head and handle.



After with retaining bolts in place.



With traffic counter hose protectors.

PARK PRACTICE GRIST

a bimonthly publication of the nonprofit, educational Park Practice Program cooperatively conducted by the National Park Service, U.S.D.I., the National Conference on State Parks, and the National Recreation and Park Association as listed hereafter.

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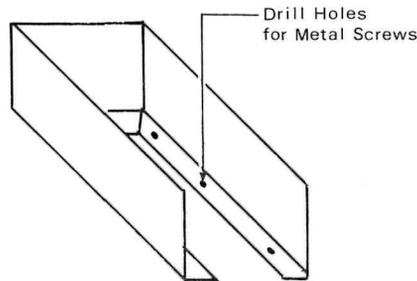
SECURE PLACEMENT FOR IN-TRANSIT WHEELED STRETCHER

The wheeled stretcher in the photo, with no anchorage, tended to move about in the vehicle when it was in motion. Ranger Robert C. Cunningham, Yellowstone National Park, designed the cups shown in the sketches to hold the stretcher securely in place.

Cut, shape, and drill the wheel cups from angle iron as shown in the sketches. Place the cups to fit the width of the extended wheels and adjust the space between the front and rear cups so that the back end of the stretcher must be lifted to set the rear wheels into the rear cups.



Then drill and screw down the cups. The stretcher will stay put.

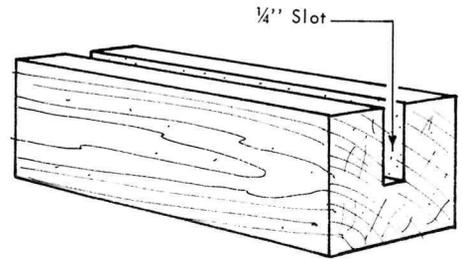


AVOID JAMMING POSTAL MACHINES

Letter mail may not be more than 1/4" thick without being marked "non-machinable," in accordance with the new postal guidelines. Norma J. Graham, clerk-typist, Blue Ridge Parkway, has devised a quick and sure way to determine whether or not the material she is mailing out must be so marked.

Make a 1/4" slot approximately 1/2" deep in a block of wood. If there is any question about the piece you are mailing, try it in the slot. If it does not drop in

easily it would jam the postal machine and therefore should be marked "non-machinable." The device would be particularly useful in offices where informa-



tion material (maps, pamphlets, folders, and the like) is mailed in quantity.

Norma finds this automatic measurer saves time and eliminates the guess-work.

Letting nature take its course is, and always will be, an ideal. Once man comes into the picture, an approximation to the ideal is as near as you can get.

—Freeman Tilden

DOCK ANCHORING SYSTEM

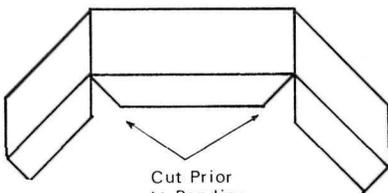
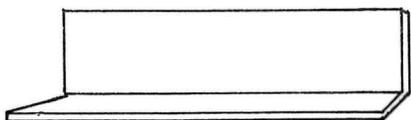
A dock anchoring system installed on two formal concrete launch ramps on Blue Mesa Lake Curecanti Recreation Area, is the design of Park Ranger Dean C. Binwalter.

As shown on the accompanying drawing, a series of embedded steel rings runs the length of the ramp on both sides at 8 to 10 ft. intervals. The rings were originally intended to be anchor points for permanent dock lines. However, rapid water level fluctuations during spring and fall make operation of the intended system impossible during these periods.

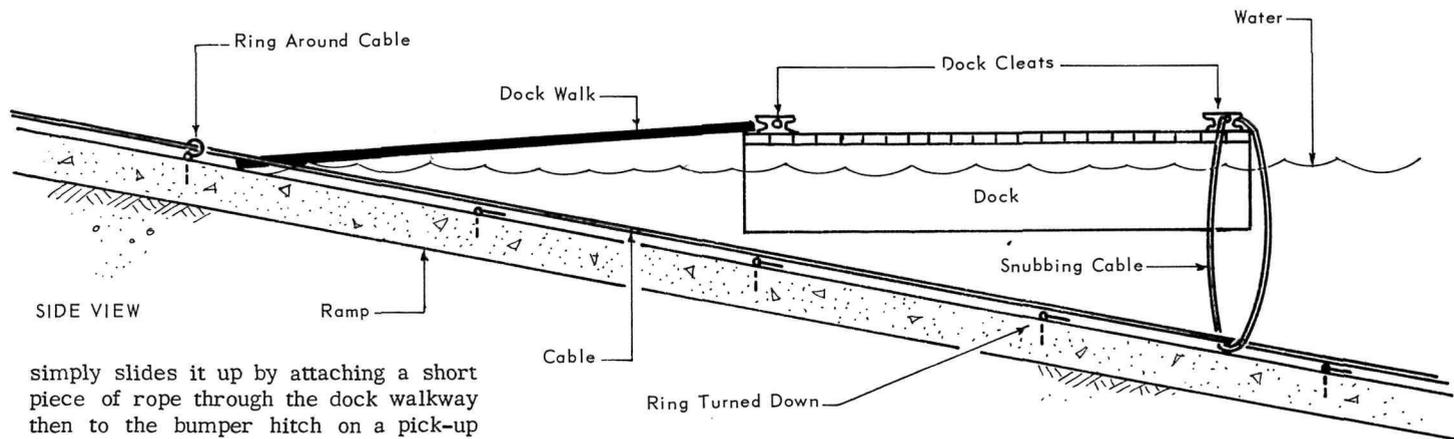
The improved system stabilizes the dock at two points (there has been no problem during high winds).

1. Protection from sideways movement is achieved by a 6 ft. diameter loop of stainless steel cable which passes through a hole in one of the end dock cleats and then under the main cable.
2. Movement up the ramp is prevented by the weight of the walkway, and movement toward the lake is prevented by the taut cable loop.

During the spring when large numbers of people are using the launch ramp and water is rising rapidly, the dock has to be moved at least once daily. Under the old system this required two men (one of them often a diver) and frequently meant holding up the boaters for as much as an hour. Now one person can do the job in a few minutes. A stainless steel cable runs the length of the ramp through every third ring. The person moving the dock



STRETCHER WHEEL CUPS FROM ANGLE IRON

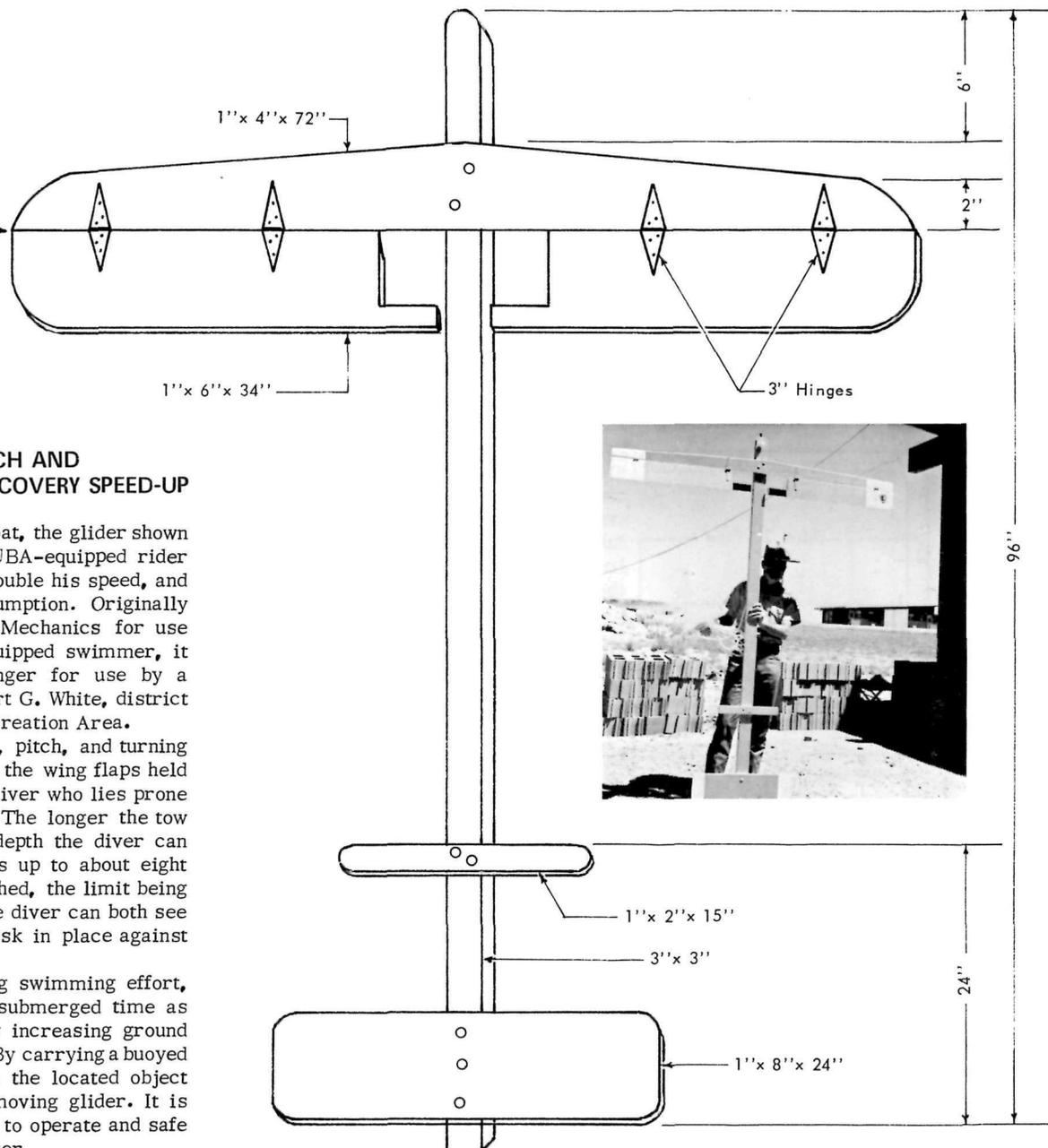
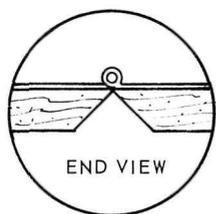


simply slides it up by attaching a short piece of rope through the dock walkway then to the bumper hitch on a pick-up truck. After the small loop of cable, attached to the end of the dock, has been slid the distance of three rings, it must be released and moved up to the next three-

ring distance. This takes five or ten minutes at the most and one man.

Dean suggests that if the set of rings

ran down the middle rather than either side, the dock could be located so that both sides would be usable at all times.

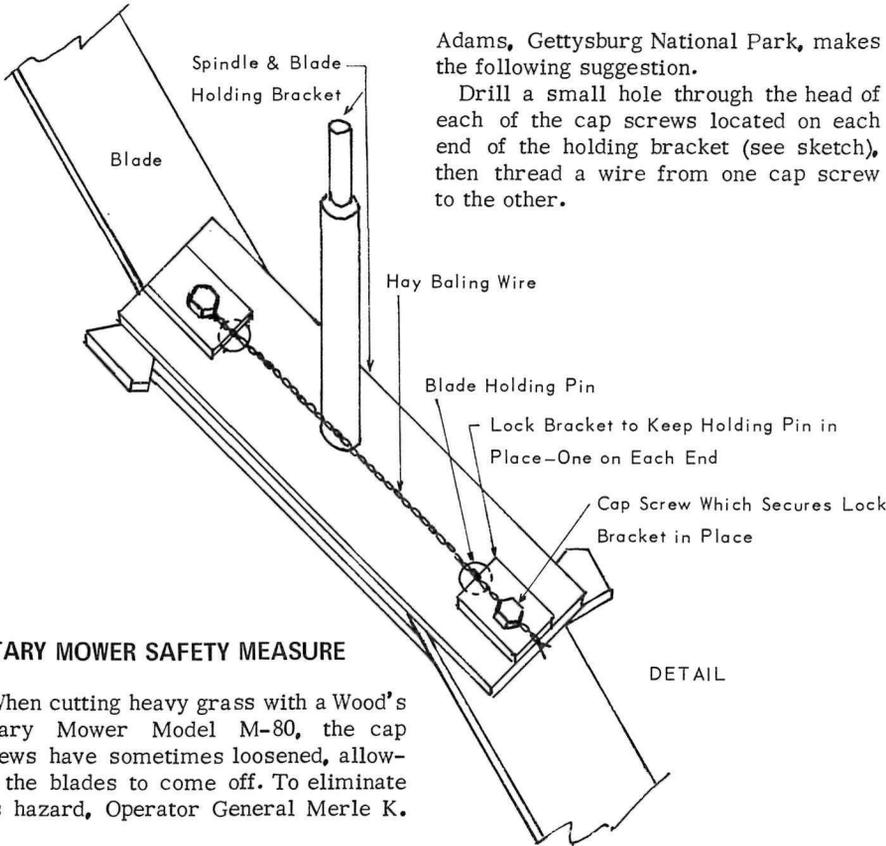


UNDERWATER SEARCH AND RECOVERY SPEED-UP

Towed by a motorboat, the glider shown here enables its SCUBA-equipped rider to triple his range, double his speed, and reduce his air consumption. Originally pictured in Popular Mechanics for use with a face-plate-equipped swimmer, it has been made stronger for use by a SCUBA diver by Robert G. White, district ranger, Curecanti Recreation Area.

Glider depth, angle, pitch, and turning are all controlled by the wing flaps held in each hand by the diver who lies prone on top of the frame. The longer the tow line the deeper the depth the diver can reach. Towing speeds up to about eight knots have been reached, the limit being the speed at which the diver can both see and keep his face mask in place against the water pressure.

By greatly reducing swimming effort, the glider lengthens submerged time as well as tremendously increasing ground covered in a search. By carrying a buoyed line, the diver marks the located object without leaving the moving glider. It is quite simple to learn to operate and safe for an experienced diver.



ROTARY MOWER SAFETY MEASURE

When cutting heavy grass with a Wood's Rotary Mower Model M-80, the cap screws have sometimes loosened, allowing the blades to come off. To eliminate this hazard, Operator General Merle K.

Adams, Gettysburg National Park, makes the following suggestion.

Drill a small hole through the head of each of the cap screws located on each end of the holding bracket (see sketch), then thread a wire from one cap screw to the other.

UNFAIR TO THE BEAR



A bear, attracted to campgrounds by food left available by careless campers soon becomes accustomed to man and therefore potentially dangerous. It is then necessary to destroy him or ship him off to a zoo. Is that fair to the bear?

Although instruction on proper camping practices in bear country are handed out at each entrance station, posted on bulletin boards, and included in all informational literature at Yellowstone National Park, careless camping practices continue to be a serious problem, Superintendent Jack K. Anderson says. In addition to the printed information, rangers drive through the campgrounds each evening giving instructions by loud speaker. In spite of all these warnings, many campers leave food on tables, dishes unwashed, ice chests outside, and food in tents.

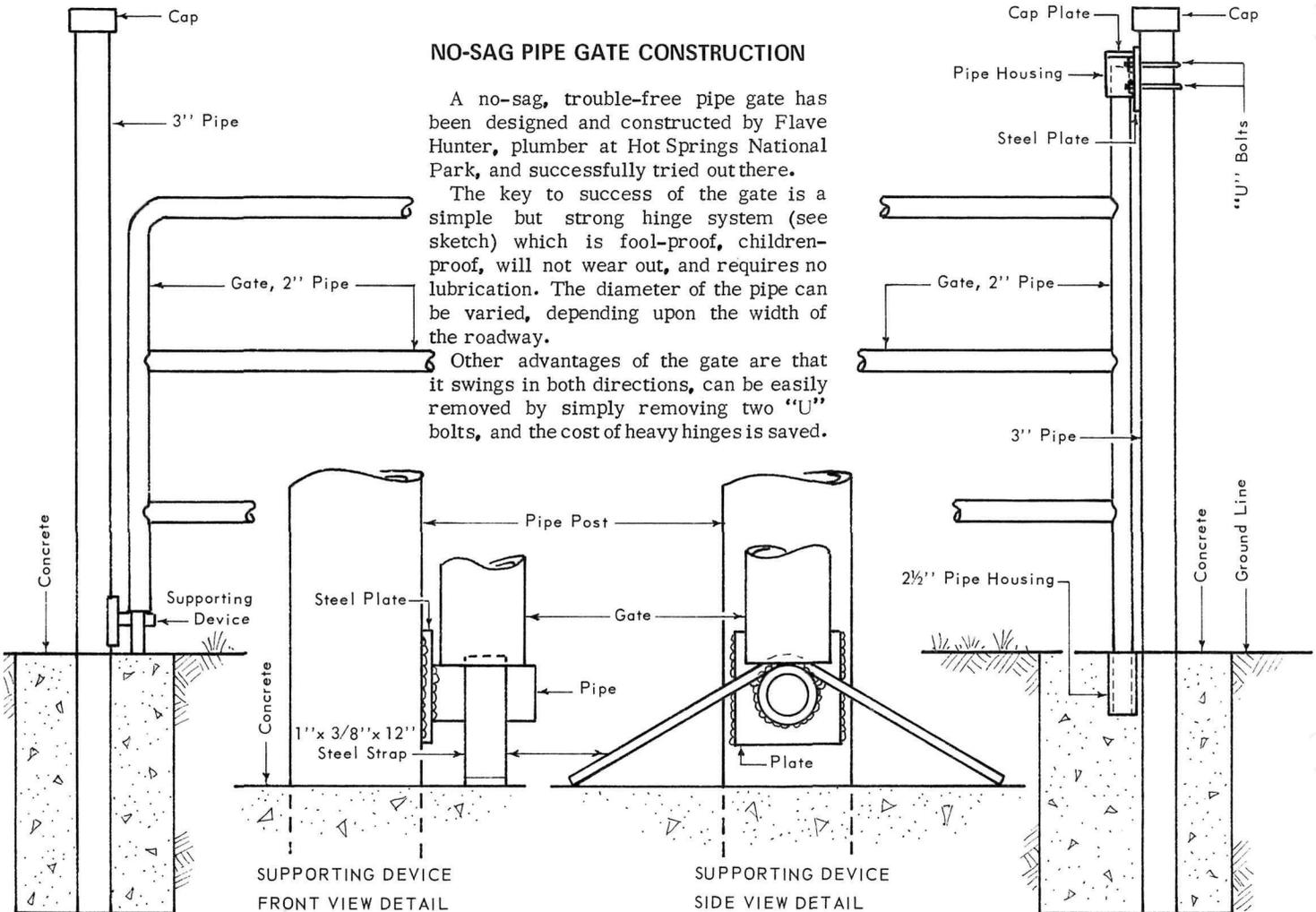
Superintendent Anderson is seeking more substantial fines for bear-feeding when it results in property damage, per-

NO-SAG PIPE GATE CONSTRUCTION

A no-sag, trouble-free pipe gate has been designed and constructed by Flave Hunter, plumber at Hot Springs National Park, and successfully tried out there.

The key to success of the gate is a simple but strong hinge system (see sketch) which is fool-proof, children-proof, will not wear out, and requires no lubrication. The diameter of the pipe can be varied, depending upon the width of the roadway.

Other advantages of the gate are that it swings in both directions, can be easily removed by simply removing two "U" bolts, and the cost of heavy hinges is saved.



sonal injury, or makes it necessary to destroy or otherwise dispose of a bear.

Anderson also warns visitors of the hazard of getting out of their cars near grizzlies. The bears can frequently be seen near roadsides during early weeks of the season, and there have been instances of park employees being treed when they got too close to a mother with cubs. Visitors are warned to stay in their cars if they spot a grizzly and observe or photograph from the safety of their vehicles.

Let it be remembered: a bear is a wild animal and a park visitor is an invader in his territory—his home.

The information in this item was gleaned from the newsletter, *Howdy's Happenings*, Good Outdoor Manners Association, P.O. Box 7095, Seattle, Washington 98133.

**SELF-SERVICE
CAMPING REGISTRATION**

The camping registration shelter shown here is located on Lake Clementine on the North Fork of the American River, California. The camping areas may only be reached by boat and are located on sandbars. Information and specifications for construction were provided by Terry G. Ashford, District Administrator, Auburn Area Recreation and Park District.

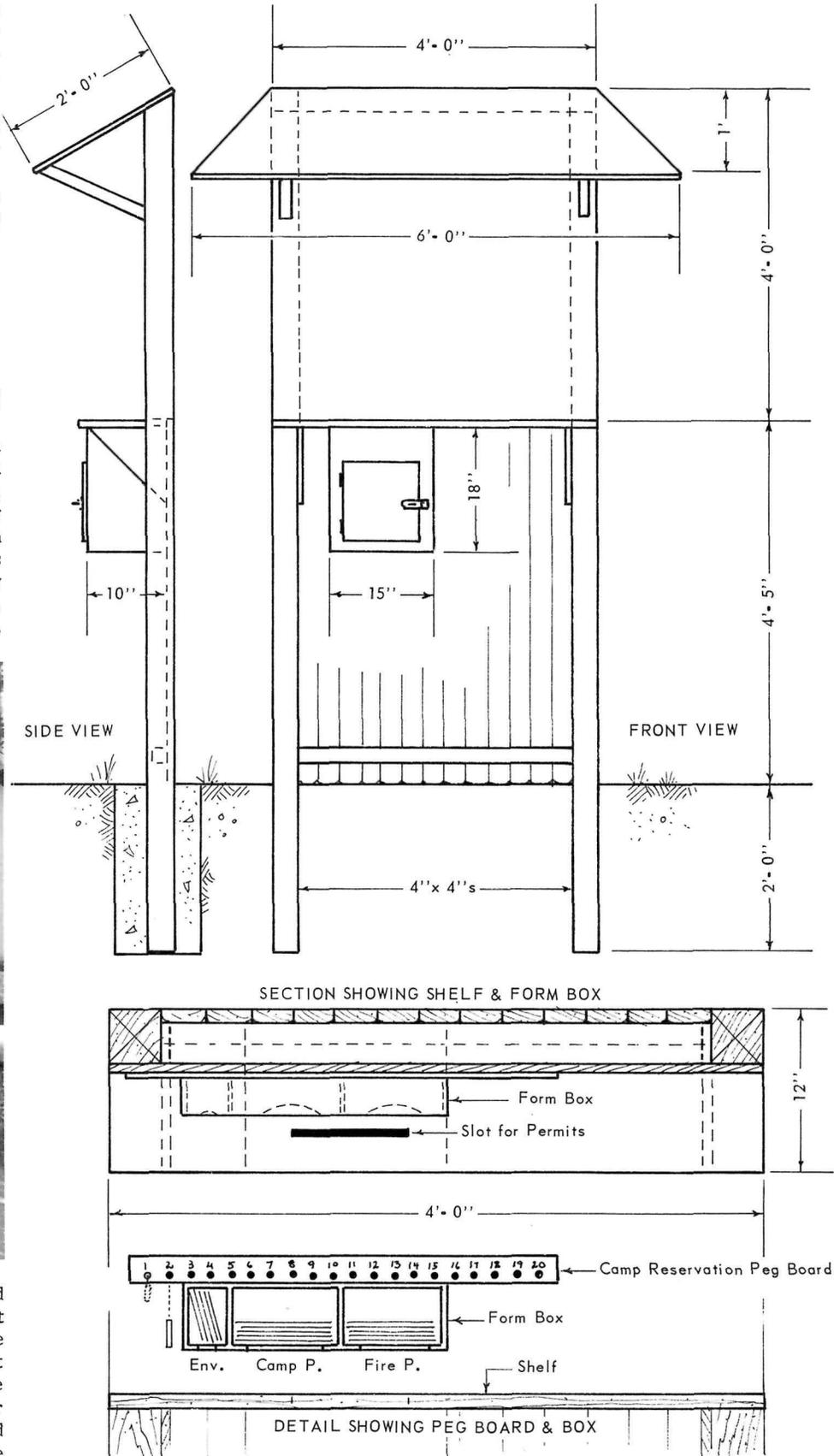


The shelter provides a self-contained registration procedure. Camping permit forms, fire permits, and envelopes are available in a built-in three-compartment unit above the counter and set into the bulletin board (see photo). On the counter are instructions for permit procedure and a slot for depositing an envelope when the

procedure has been completed. The envelopes drop into a metal container bolted to the bottom of the counter.

Above the permits is a board with wooden pegs, each attached to a light chain. Twenty holes have been drilled into the board, each below a number. After a

camper has selected a campsite he pays his fee, fills out a camping permit which he places in the envelope together with his fee payment, and drops the envelope through the slot into the metal box. He then places a peg in the hole below the number of the campsite he has chosen.



PICNIC TABLE WITH WALK-IN SEATS

There's no climbing over seats nor tripping over end braces of these Sturdisteel picnic tables. You can purchase the tables alone or the picnic table shelter combination.

The table frames are made of heavy galvanized pipe, angle cross pieces, galvanized pipe braces with galvanized or cadmium plated bolts. The five pieces of lumber for the 6' or 8' tables are 2" x 10" non-splintering, stadium stock treated with Pentachlorophenol after sawing, precision drilled and rounded. The wood pieces are interchangeable and reversible, an aid to speedy assembly of the units which are shipped knocked down.

The price of each 6' table is \$38 (less in quantity). For additional price and specification information write to Sturdisteel Company, Division of Central Texas Iron Works, Box 949, Waco, Texas 76703.

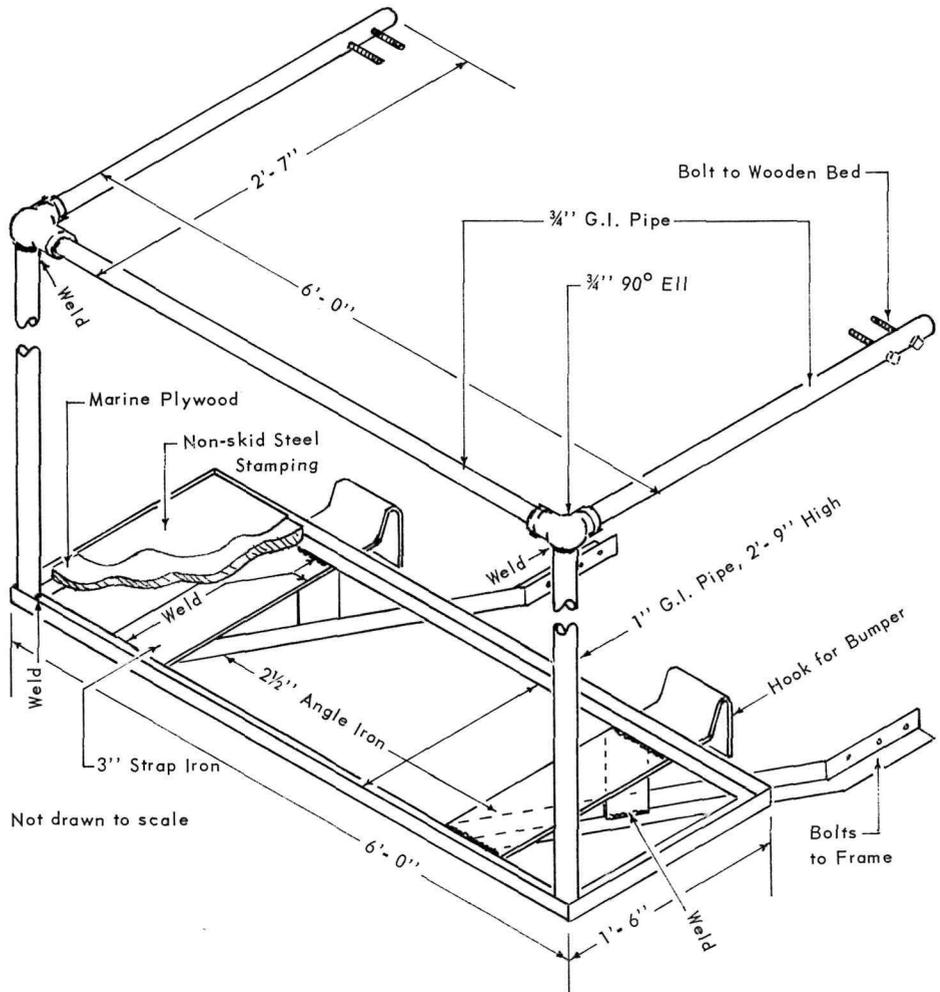
Also available is a picnic table-shelter unit combining the same table with walk-in seats (8' size) and a sturdy shelter made of 20-gage hot rolled galvanized steel for the roof deck, with 2 1/2" tubing for columns. A simple footing at each end makes each table-shelter a permanent installation.



TRUCK-WIDE PLATFORM FOR CLEAN-UP WORK

The cab-over-engine truck shown here has been equipped with a work platform the full width of the back of the vehicle. This enables a worker equipped with a spear or pitch-fork to pick up trash from either side of the truck.

This is Mechanic Charlie L. Vance's improvement over the former practice of installing a small platform or cage on the right rear side of clean-up trucks. This permitted spearing of trash from that side only.

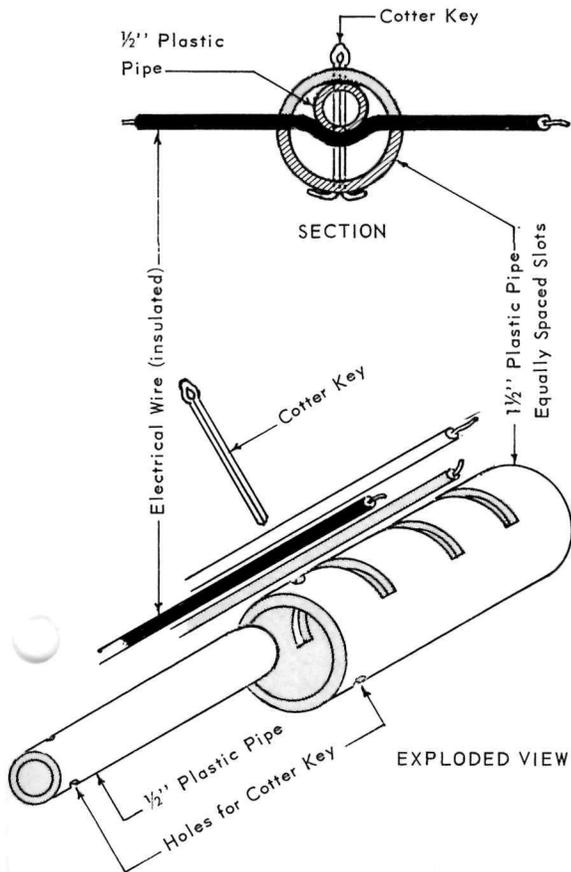


Charlie's full width platform, with safety rail, speeds up trash collection while the truck is in motion and permits the worker to duck under the railing when necessary to perform off-the-shoulder clean-up. This maneuverability means that more miles of roadside clean-up can be done in a given time. An added safety feature is the caution sign which is big enough and bold enough to warn motorists. The platform is in daily use in Great Smoky Mountains National Park.

Construction specifications are provided in the sketch. Materials cost about \$60, and about 8 man-hours were required for construction.

PLASTIC PIPE POWER LINE SPACER

Sometimes it is necessary to separate several secondary power lines connected between common poles. Commercial spacers cost as much as \$14. Foreman Samuel H. Griffith, Sr., Shenandoah National Park devised one which costs sixty cents.



Notch a 1 1/2" diameter plastic pipe, a notch for each power line. Insert a power wire in each notch. Insert another plastic pipe of smaller diameter (1/2") into the notched pipe; this will hold the wires in place with proper spacing (see sketch). To hold the entire spacer together, place a cotter pin in a hole made through both pieces of pipe.

LIFE EXTENSION FOR BATTERIES

The useful life of most storage batteries can be extended by using motor oil to prevent corrosion on the terminals and related parts and by keeping the sealing compound soft and pliable so that it does not shrink and crack open causing acid leaks.

Since adopting this practice at Rocky Mountain National Park, suggested by Shop Foreman Barton P. Boothroyd, damage from leaking battery cells has become practically nonexistent. It is no longer necessary to stock battery cables or hold-downs since the originals last the life of the vehicle if kept lightly oiled.

When battery replacement is necessary there are no corroded parts to make it difficult and no parts to be replaced due to corrosion, thereby saving both time and materials.

An old 1/2" or 1" paint brush dipped in motor oil and brushed over the terminals, the hold-downs, and the sealing compound around the top of each cell does the job in one or two minutes. If after a year or so, or if operating in dusty conditions, it becomes necessary to re-oil, just wash off with warm water, let dry, then renew the oil protection.

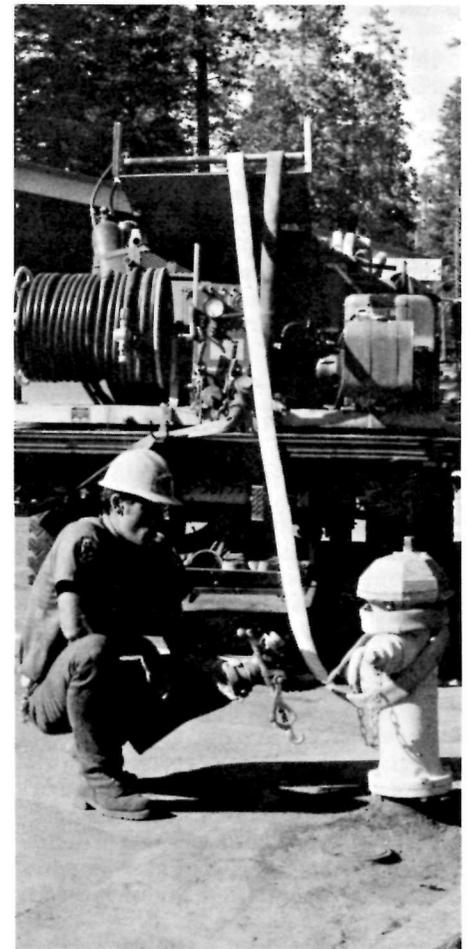
If care is used in installing battery cables over the battery posts so that the posts are not loosened in the case, if the battery is held down properly, and if this oiling program is carried out to prevent corrosion and cracked cell seals, Burt estimates a yearly savings of about \$100 in time and materials for a fleet of between 80 and 90 vehicles. Another plus for the procedure is the avoidance of many starting failures caused by corroded cables or connections.

HOSE FEED-OUT TRAY FOR PUMPER

Normally two men are required to feed out hose from a Forest Service Class II pumper, one man on top of the truck to assure that the hose feeds properly with no damage to couplings, the other man on the ground to pull the hose. Forestry Foreman Bruce W. DeSimms, Sequoia and Kings Canyon National Parks, has made this a one-man job.

The tray, shown in the photographs, enables one man to pull out 450 feet of hose within 20 seconds, and the design prevents damage to couplings and to truck-mounted gauges, or valves in the process. Several minutes are saved thereby in situations where time is vital. Possibilities of personal injury are also decreased.

Tray for holding Pacific Marine Pump at the front of pumper truck. Made from 1/4-inch steel sheeting, and 1/2-inch piping.



The hose feeder tray is mounted at the rear of the pumper truck, and enables one person to pull out the hose and wrap it around the hydrant, while the driver moves the truck near the fire laying the hose without any damage to couplings.

View showing both the tray for holding a Pacific Marine Pump at the front of the water tank; and the hose feeder tray at the rear of the truck.



ORGANIC GARBAGE DISPOSAL

How do you avoid the mixing of wet garbage with other refuse at campgrounds which causes collection and disposal problems as well as offensive odors and provides an attraction for flies, rodents, and other creatures? Garb-Trol provides a simple means of isolating and disposing of wet garbage at place of origin. It accomplishes this by use of an underground metal storage unit with a natural earth bottom plus a culture of bacteria.

The wet garbage is deposited through an above-ground covered opening. A cup of specially formulated culture of bacteria is added to the first deposits of wet garbage, after which additions of like amounts of the activator three or four times a year are normally sufficient. The activator dehydrates the garbage, removing its 85% water which seeps into the ground, leaving a composted residue. Garb-Trol units properly maintained, need no cleaning out for several years, the manufacturer says.

The method has been in continuous use since 1957 in thirty campgrounds in Georgia and South Carolina.

The above-ground conical section is 18 inches high and made of 16-gage metal with a 10-inch diameter opening covered by a 14-gage hinged cover seated on a neoprene gasket. It attaches to the below-ground cylinder with a locking ring. A 55-gallon drum with ends removed can be used as the below-ground unit, and if this is desired, the conical section with locking ring, which also fits the drum, is

available separately

A single unit, including above- and below-ground sections is \$79.50; without below-ground section, \$63. Discounts are



available on quantities over four. Write to Garbage Composter System, P.O. Box 6802, North Augusta, S.C. 29841.

DURABLE FIBERGLASS TENNIS TABLE

The manufacturer claims that this fiberglass tennis table lasts three and a half times longer than those made of less durable material, and that while the original cost is more, it is less expensive in the long run.

Heavy duty fiberglass protects both the edges and the table top from paddle damage; no metal edge is needed. The fiberglass opposed shell construction with honeycomb core is said to provide extra strength and stability and eliminate warping. Top replacement costs are eliminated, and no painting is ever required because the fiberglass top is permanently impregnated with the color. A special textured surface molded into the top gives a good, permanent playing surface.

The mobile, folding, unitized base is made of heavy duty steel tubing, not-dipped and galvanize-plated after fabrication, and all fasteners are rust-proofed.

The table can also be used for self play with net in position.

Additional specifications and price information may be obtained from Dentin Manufacturing Company, 10638 South Painter Avenue, Santa Fe Springs, California 90670.

NO-PIN NAME AND PROGRAM HOLDER

Into a man's coat pocket slips this plastic name tag and mini-program holder—no pin to make a hole in the suit, and the conference program is always at hand.

The holder is 3 3/8" x 6 7/8", with two pockets. The upper pocket holds the name tag and the lower one the program which has been printed in reduced, mini-size, 3 1/8" x 4 1/2". The holder has a cut-out flap below the name tag which hooks over the handkerchief pocket of a man's coat, keeping the name in sight. It could hook over a belt, if it were a no-coat conference.

The holders are available from G.G. Tauber Co., Inc., 12111 Parklawn Drive, Rockville, Maryland. The minimum order is 250; price 11 cents each. Above the 250 minimum, shipment is in multiples of 125.

START-STOP SWITCHES FOR SEWAGE PUMP

Sewer pump stations with two pump units are wired with an alternator to switch pumps automatically after each operation. When the serviceman checks these pumps he must wait through two cycles before he knows whether the pumps and the alternator are operating properly. For this reason it takes fifteen minutes or more to check each pump pit.

Electrician Vere Griffen, Everglades National Park, installed start and stop

switches to make the checking job easier and less time consuming (see wiring diagram). In the Flamingo District of the park, where there are eight double pump stations, this resulted in a saving of ten minutes per pit per day, or 486 hours a year.

The switch enables the serviceman to start a pump by by-passing the pump pit controls. If the pump is okay, he can stop it and start the alternate pump, at the same time checking the operation of the alternator (if the same pump starts, the alternator is faulty). Maximum time now required to check out pumps is five minutes.

ORIGINAL WIRING DIAGRAM

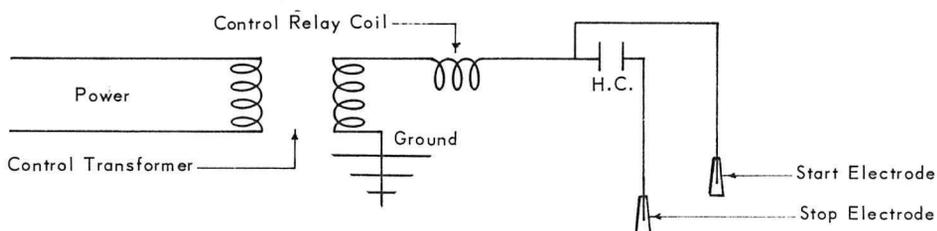


DIAGRAM WITH START-STOP SWITCH (in normal operating position)

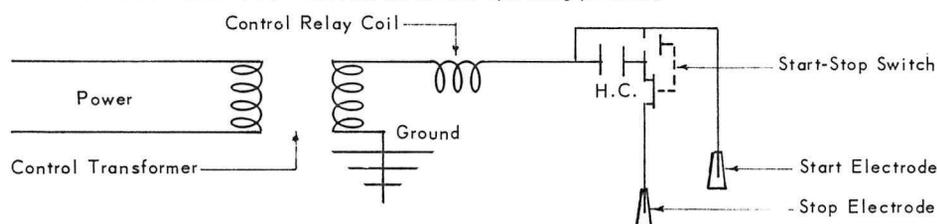
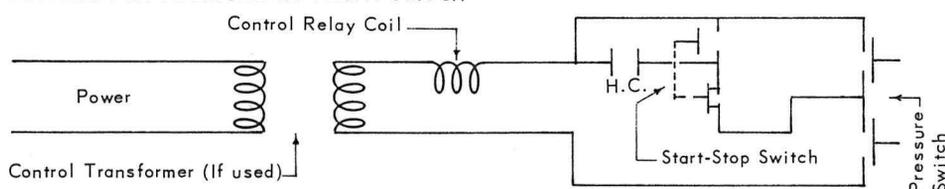


DIAGRAM FOR PRESSURE OR FLOAT SWITCH



PARK COOKER

The outdoor park cooker shown in the sketch has the following features:

1. Expanded metal fire grate for wood or charcoal
2. Ash pit—draft area, for easy cleaning and more efficient burning
3. Cooking grid and plate
4. Adjustable cooking grid lock (eliminates chain)
5. Rear bottom draft and clean-out slot
6. Constructed of 3/16" steel
7. Cooking unit rotates 360 degrees
8. Unique locking system (eliminates chain). Only one lock
9. Mounted on 2 1/2" O.D. steel post
10. Cooking area 14" x 19 1/2"



This Model MPC 12E costs about \$37 for a single unit. Standard packs (4 complete units) packed on pallets range from about \$36 for each grill in quantities of 1 or 2 pallets to about \$34 each grill for 9 or more pallets. Available from Metals Engineering Corporation, P.O. Box 30005, Greeneville, Tennessee 37743.

TREES—NATURE'S SOUND BARRIER

Forestry researchers are finding some scientific validity for the ancient practice of using trees as sound barriers. Researcher Raymond E. Leonard has shown that shrubs and trees, if used correctly, can help reduce noise.

Forestry Science Photo Story (No. 11), U.S. Department of Agriculture, Forest Service, reports that each 100-foot width of trees can absorb about 6 to 8 decibels of sound intensity. Increased tree-screen width has a multiplier effect: 150 feet decreases noise level by 9 to 12 decibels, 200 feet decreases it by 12 to 16, and so on. This may seem like a small reduction in view of 48 decibels generated by normal speech, 72 to 78 by a busy intercity highway, 92 by a barking dog, 110 a beeping horn, more than 140 by a screaming jet.

But any reduction is welcome and might make the difference between a livable environment and an extremely unpleasant one. Researchers have found that sound levels above 50 decibels may be irritable to human beings; in excess of 130 may be harmful.

Size, position, and density of trees, as well as certain meteorological conditions like wind, moisture, temperature and terrain contribute to sound control by trees.

Location of the sound source is an important factor when planning a tree barrier. Along highways, dense plantings will more effectively lower the noise level if the sound source is lower than the receiver. Trees planted uphill of a highway will give maximum sound control. A belt of trees around the airport will reduce sound levels when aircraft are on the ground, but once they are airborne the sound has only to penetrate through the thin forest canopy.

By moderating wind and temperature, trees also reduce any influence these factors might have on sound transmission.

Human senses of sight and sound often reinforce one another, so that seeing the cause of noisy discomfort tends to aggravate it. Therefore, trees planted so as to screen or camouflage noisy neighbors will have a marked effect in making the sound seem less harsh.

Forestry Science Photo Story, from which the information in this item was taken is published by Northeastern Forest Experiment Station, Upper Darby, Pennsylvania 19082.

HINTS FOR BETTER MIMEOGRAPHED DRAWINGS

After putting in a lot of effort to make a drawing on a mimeograph stencil, has the result been too dim, too heavy, full of ink splotches? Donald M. Black, Joshua Tree National Monument, has some suggestions from his experience.

Maybe the stencils are of poor quality. Sometimes stencils get too warm and seal over the lines while they are being drawn. And, sometimes that blankety-blank machine doesn't ink properly.

First, fold back or remove that "stretchy" piece of plastic from the front of the stencil. Lay the stencil on a hard, firm surface. If you are working on a light box, fold back the piece of cardboard backing and substitute a sheet of thin white paper. Cover the area in which the drawing is to be made with sheet plastic of the firm, thin type (like that which comes on packages of cigarettes or boxes of candy). For a stylus, use a ball point pen that still writes. The ball point rolls, so is less likely to dig into the plastic and stencil than a regular stylus. Use the plastic only once as it tends to become covered with stencil wax.

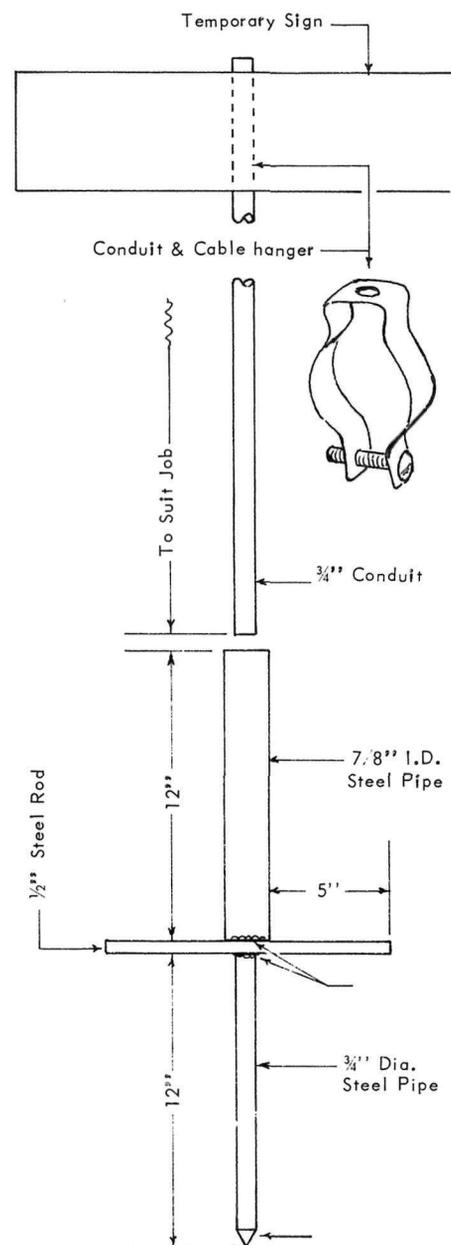
Remember not to let the stencil get very warm if you're working on a light

box because the wax will spread back across lines and fuse the edges.

Shading should be done through the non-stretch plastic. There are special tools for doing this, but a large needle (eye-end stuck into a wooden handle) will work as well. Work in short periods if the stencil tends to get too warm.

PARK VISITOR DESIGNS A SIGNPOST

This suggestion is unusual because it comes, not from a park employee as do other ideas which appear in these pages, but from a park user, Russ Bates, a member of the Multi-Lakes Conservation



Club in Commerce, Michigan. His design for a temporary signpost or marking stake shown here was tried successfully in one of the Michigan parks, and Assistant Park Supervisor Robert Palowoda sent along the sketches to share with GRIST readers.

ROOF SCAFFOLDING METHOD

The use of metal brackets to hold scaffold planks on a roof, when placing wood shingles, has been found to be superior to any previous method used at Yosemite National Park. It is safer and there is a substantial saving of manpower and material. The method was suggested by Carpenter J. G. Crocker.

Three brackets are used for each 16 ft. 2x8 plank. As many sets of planks and brackets are used as are necessary to do the job. They can be moved up the roof as work progresses, or they can



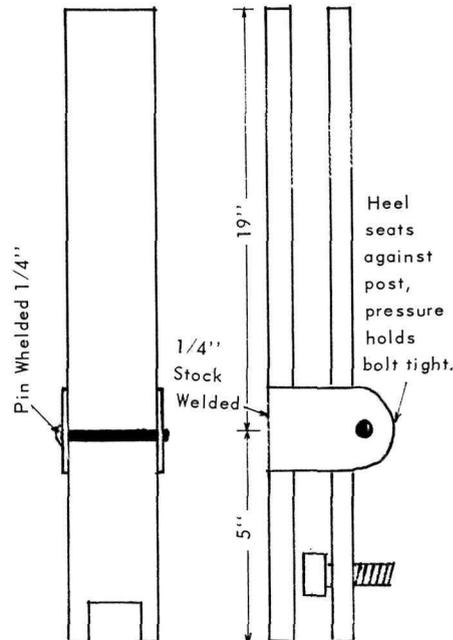
be left in place until after painting is completed. The brackets are placed on the roof and layed into a course of shingles (photo 1). Photo 2 shows brackets and planks in use. Brackets are removed by striking a blow with a hammer at lower end (photo 3).

Brackets can be purchased on the open market, or they can be made in the shop, each requiring 2 pieces of 2" x 36" x 12 Ga. steel, 4 bolts or rivets welded.

PREVENTING REMOVAL OF TRAFFIC SIGNS

Here's a method of keeping bolt heads from turning inside pipe signposts (see sketch). Not only will it be helpful in the job of installing or replacing metal traffic signs, but it makes it nearly impossible for vandals to remove a sign.

The suggestion comes from Carpenter Sherman Sword, Hot Springs National Park.



LONGER LIFE FOR MOWER BLADES

Applying hard-facing alloys to bush-hog type mower cutting blades will greatly improve efficiency and service life. That is the finding at Natchez Trace Parkway where the procedure has been adopted park-wide. The suggestion came from Automotive Mechanic Hammond E. Skeen.

A new set of blades (6 blades on a 15-foot SMC Mowal) or a set sharpened in a blacksmith shop will cut efficiently for only 3 days. They are then removed, turned over, and run another 3 days, making a total of 6 days cutting time.

It costs \$12 to have 6 blades (12 cutting edges) drawn out and sharpened in a blacksmith shop, or the same amount to have hard-facing alloys applied to the blades and have them sharpened. The time required to change the blades is the same in either case: 2 men, 1 hour each (cost, about \$4.93). Now, how worthwhile is it to apply the alloys? These hard-faced blades will cut efficiently an average of 7 days. Then they are turned over and run another 7 days, making a total of 14 days; or put another way, the hard-faced blades last 8 days longer than the regular blades. This saves \$21.52 per mower each 7 days.

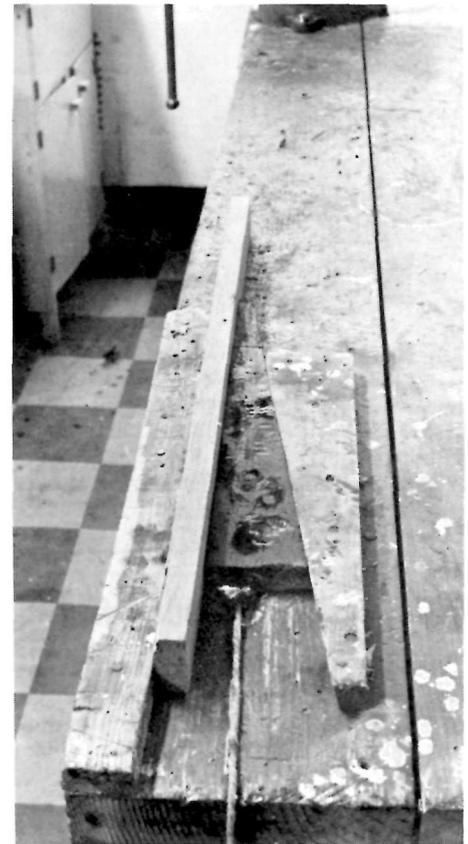
A new set of cutting blades (6) costs

\$42 from the factory. The hardening must be applied 4 times a year at a cost of \$48 (\$12 each time). New blades to which hard-facing alloys have been applied will outwear 6 sets drawn and sharpened in a blacksmith's shop. So, there is the additional annual saving for each tractor of \$78 [\$126(3 new sets of blades not required) minus \$48 (application of alloys to the 3 new sets purchased) equals \$78.]

SIMPLE CLAMPING DEVICE FOR PLANING

The simple clamp shown here was designed and made by Caretaker Raymond E. Norman, Homestead National Monument. It can be used on a sawhorse or bench.

Saw a 1", or thicker, board on an angle with the saw tipped to undercut the board. Nail or bolt this wedge-shaped piece to the bench (see photos). Then nail securely along the edge of the bench a straight board of the same thickness. Stand the



piece to be planed along the inside edge of the straight piece and run a second wedge-shaped piece between it and the wedge you have secured to the bench.

Ray made the clamp from scrap lumber. Sliding the long, loose wedge tightens or loosens the clamp. A light tap with a hammer will tighten it to securely hold the board to be planed, and a tap on the other end will loosen it when the job is done.

FREEZE-PROOFING WATER LINES

When the water system in the Colter Bay area of Grand Teton National Park was installed, no winter use requiring water was anticipated. Therefore, the lines were not placed deep enough to protect them from freezing, and they were drained before freezing weather and turned on after spring thawing. The depth at road crossings where trouble might be anticipated usually runs under three feet.

Activation of the area on a year-round basis made it necessary to have water year round for domestic use and fire protection. No alternate source was available, so it was necessary to find a way to protect the existing system. All the solutions being considered were expensive and many were impractical, then Daniel G. Shultz learned that the Wyoming State Highway Department was experimenting with Styrofoam HI to prevent frost penetration and the resultant heave of roadways. He checked this out, consulted the supplier, Dow Chemical Company, Midland, Michigan, and the decision to try Styrofoam planks was then made.

Applying the slabs was simple. An ex-

cavation was made 36 inches deep by 9 feet wide over the pipe and extending into the road shoulders far enough to remain under unplowed snow. A layer of loam soil 6 inches deep was spread to cushion the planks, which were laid crosswise to the pipe and firmly crowded together. Another layer of loam soil was then plowed on top of the planks. Pins or other means of holding the planks in place were not considered necessary. Normal backfill and compaction operation was then completed. A total of 2000 sq. ft. of Styrofoam HI was used over seven road crossings and a 10ft. sq. around a fire plug.

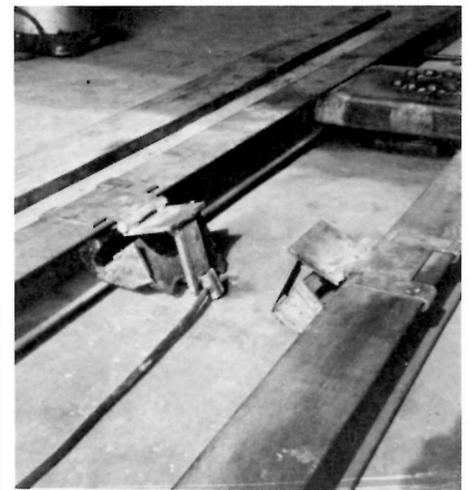
The first winter after installation temperatures were above normal, but still there was a good deal of -20 degree F. weather. Frost depths in adjacent areas exceeded 5 feet. In fact, when water was turned into the water mains off these lines, a freezeup occurred at a 5-foot depth on a 10-inch main.

There were no means of checking actual ground temperatures either above or below the planks. Water temperature in the reservoir was 36 degrees F. at lowest point and 34 degrees F. at the end of the line after passing through the protected crossings.

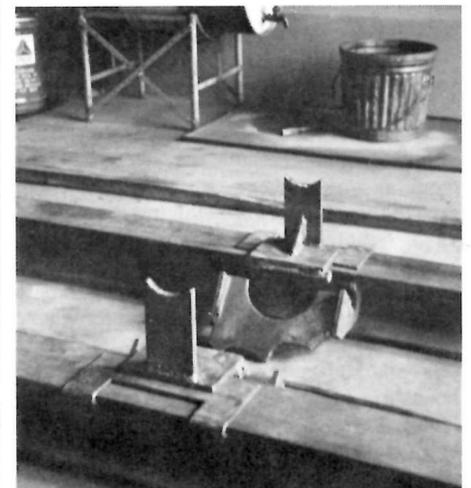
The Styrofoam is expected to protect the water lines even with colder temperatures still to be experienced. (Type of water mains protected: 6" and 8". Trans-side water pipe, 150 PSI, working pressure.)

**GREASE RACK
MODIFICATION FOR RAMBLER**

Maintenanceman Clyde McDaniels, Natchez Trace Parkway, found that the exhaust system of American Motors cars prevented use of normal rear housing brackets on their grease rack because they were too wide. After working on a Rambler or two, he made two auxiliary brackets and coupled them to the originals



Brackets in down position.



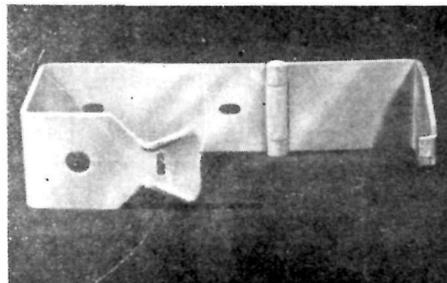
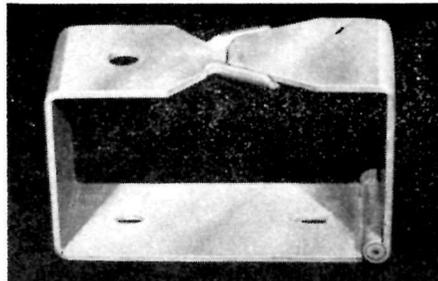
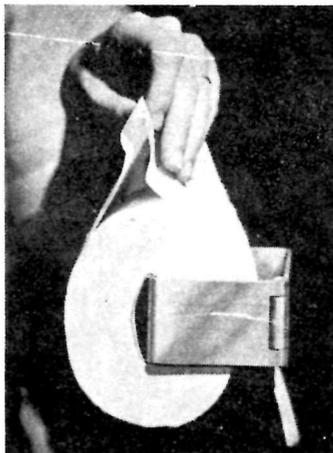
Brackets in upright position. Side view.

by means of 1/2" bolts. Each bracket was made of 1/2" flat iron with an arc cut in its top to allow the car to come over (see photos). When not needed, the brackets can be removed from the originals merely by extracting the pins.

This modification prevented damage to Rambler exhaust systems, made for greater safety when the car was on the rack, and saved the cost of a commercial attachment.

**VANDAL-PROOF ROLL
TOILET PAPER DISPENSER**

A. Temple Bowen, Jr., campsite coordinator, State of Maine Forestry Department, after this summer's use of the roll toilet paper dispenser shown here



recommends it as vandal-proof.

The fixture, which is entered in the Federal Standard Catalogue of Specifications, is made of anodized aluminum (1/8" x 2") specially treated for rigidity. It is a hinged, one piece holder with no removable parts. When the tissue roll is inserted on the left flange (see photos), the hinged right flange is then brought to the closed position where it snaps in the locking device and cannot be opened even

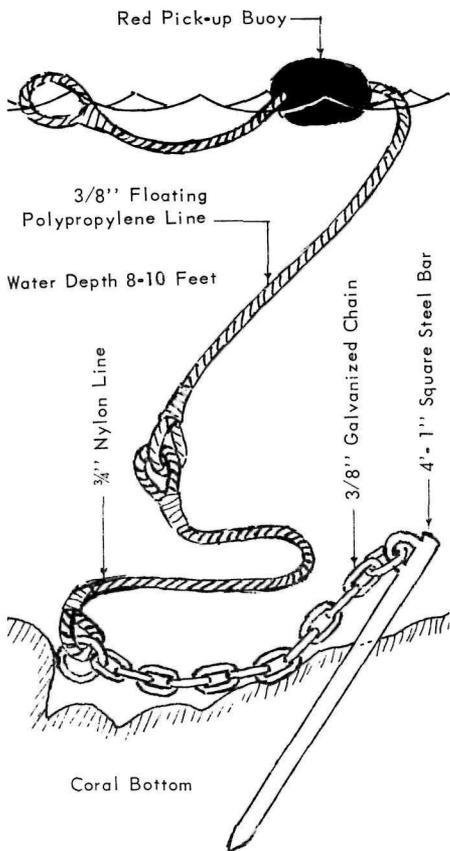
with a sharp instrument until the paper is completely used. Only a small amount of paper is dispensed at a time, and this together with the fact that the roll cannot be removed keeps the tissue from becoming soiled by touching the floor and results in a saving of paper.

Installed end to end, two holders provide a sufficient supply of paper to reduce servicing time and provide extra strength, as they are slotted to permit forcing them together tightly.

The manufacturer is, The Acme Holder Company, Inc., P. O. Box 142, Durham, N.C., 27702.

LOW-COST MOORING SITES

A top priority goal at Buck Island Reef National Monument was installation of a permanent mooring area adjacent to the underwater trail at the east end of the barrier reef. The cost estimate of \$3600 was something of a barrier itself, and so time went by.



The area was crowded with increasing numbers of charter and private boats. Some operators had put in temporary moorings of anchors, chain tied to coral or blocks of concrete which they considered "theirs," and they'd shout other boats off the site. Most boaters had to be content with throwing their anchors onto the rock-hard smooth coral surface where there was little good holding bottom. This was particularly dangerous as sudden squalls blow up quickly and strong "Christmas winds" blow during the period of heavy visitation. Boats sometimes collided when leaving and entering the mooring area because of the haphazard arrangement of the sites and the many dangerous coral heads surrounding this parking area.

Supervisory Park Ranger George D. Church cleared up the snafu and beat the cost estimate by well under a third. Eleven mooring sites delineating the area for assembly of power and sailing craft were installed at an initial cost (materials and labor) of \$722.89. Upkeep consist of new lines each four to five months with replacement of pickup buoys as needed,

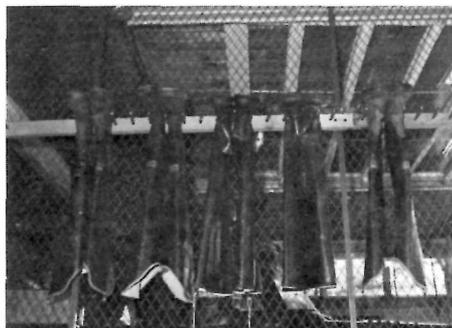
and a possible change of chain each year (about \$385). Only two lines have been cut by fouled propellers to date.

One-inch square steel bars, four feet long, were driven into the coral-rock bottom with a 16 lb. sledge hammer by a diver wearing SCUBA (see sketch). It was not known at first whether this would work as it had not been attempted before. After putting down the first piece of steel, the 36-foot patrol boat was tied on with both engines in reverse. The steel did not budge. After four months, no vessel has been able to pull out the steel or damage the mooring site in any way.

HIP BOOT DRYING AND STORAGE RACK

Unless properly dried and stored, boot linings—damp from humidity, dunking, or normal perspiration—become mildewed, rot, or acquire offensive odors. Stacking or otherwise allowing boots to remain folded results in cracking and deterioration of the rubber, especially around the knee and other areas where there is flexing action.

Park Ranger William R. Supernauth, Jr., Natchez Trace Parkway, designed the boot rack shown in the photos which allows air circulation to promote evaporation, eliminates any folding, and provides out-of-the-way storage.



The rack was made from two six-foot lengths of 2x4 lumber salvaged from scrap and clamped to a wire partition with

U-bolts. Six-inch nails (60D) with the heads removed were driven into the boars, spaced four inches apart. The nail shanks were covered with sections of traffic counter hose to prevent abrasion damage to the boots. Other hardware items were common expendables found around most shops. Construction time was about two hours.

Boots are inserted heel first, sole upward, between the nails, which support the boot along the edge of the sole, allowing the leg to hang free below. This is the storage method approved and recommended by manufacturers.

SLIP-ON TANK LIFE EXTENDER

When steel slip-on tanks begin to rust and show signs of deteriorating they can be renovated and their life prolonged by a simple, inexpensive method suggested and tested by Supervisory Park Ranger Robert D. Powell, Badlands National Monument.

Remove the top of the unit, allow the tank to dry thoroughly, then chip and wire-brush the scale and rust away. Use epoxy resin of the type that must be mixed, hardener with resin. Cover one flat surface at a time, spreading the liquid with a putty knife or wooden paddle. Make certain that the surface you are working on is level as the resin flows quite freely. Allow 24 hours for the resin to set and then mix up another batch and cover another side. The bottom of the tank should have a thicker coat than the sides for added protection.

Five dollars worth of resin and five man-hours will do it for a 100-gallon tank.

The tanks treated at Badlands have been in use for three years and are expected to last three more.

THE SURVIVAL KIT Glenn O. Snyder



"We can't eat this guy, Chief—he's a Ph.D. full of DDT."